

Water Quality Trouble Shooting for Private Wells Advice for common taste, color and odor problems

There are many parameters (chemical and microbiological) that can be present in drinking water. Some may be associated with health problems while others may simply be esthetically un-pleasing. The Department of Health has recommendations for regular water testing. For more details, visit: http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/sum_guide-res_recom/index_e.html.

The reason regular water testing is important is because many contaminants have no color, odor or taste therefore the only way to detect them is by having a water sample analyzed in a laboratory. If you suspect that there may be something wrong with your water, it is likely because you have noticed a change in taste, color or odor.

Microbiological Parameters: Such as E.Coli and Coliform bacteria can be present in odorless and colorless water

Total Coliform: **Coliform bacteria** are abundant in the feces of warm-blooded animals, but can also be found in the aquatic environment, in soil and on vegetation. In most instances, coliforms themselves are not the cause of sickness, but they are easy to culture and their presence is used to indicate that other pathogenic organisms of fecal origin for example, *Escherichia coli* (*E. coli*) may be present. They are a commonly-used bacterial indicator of the sanitary quality of foods and water. They are defined as rod-shaped, gram negative organisms which ferment lactose with the production of acid and gas when incubated at 35 °C.



Escherichia Coli (*E. Coli*): Unlike the general coliform group, *E. coli* are almost exclusively of fecal origin and their presence is thus an effective confirmation of fecal contamination. The presence of *E.Coli* in food or water can pose a threat to human health.

Treatment methods for Coliform bacteria may include one or a combination of the following:

- Boiling
- Chlorination
- Filtration
- Ultraviolet irradiation
- Ozonation
- Silver treatment
- Iodination
- Pasteurization

A Public Health Inspector can advise you on a course of action as well as talk about potential health effects if you receive a positive result for bacteria in your drinking water. If a treatment device is being considered, we recommend speaking to a qualified professional and to purchase a device that meets the appropriate NSF Standard.

NSF international: a not-for-profit, non-governmental organization, is an internationally recognized safety standard. They write standards and certify products for food, water and consumer goods. Visit their website for more details (www.nsf.org)

The following NSF standards are the ones that have tested the material safety and performance of treatment devices that come into contact with drinking water.

These are the different standards you should look for when buying a water treatment system.

NSF Standard 42: Drinking Water Treatment Units – Aesthetic Effects

NSF Standard 44: Cation Exchange Water Softeners

NSF Standard 53: Drinking Water Treatment Units – Health Effects

NSF Standard 55: Ultraviolet (UV) Microbiological Water Treatment Systems

NSF Standard 58: Reverse Osmosis Drinking Water Treatment Systems

NSF Standard 61: Drinking Water System Components – Health Effects

NSF Standard 62: Drinking Water Distillation Systems

Table 1.1: Other Common Water Quality Problems

NOTE: The table below is for general information purposes only and is not intended for diagnosing a water quality problem. The only way to accurately diagnose a water quality problem is by having your water tested. Furthermore, a decision on what treatment device to choose should only be made once you have a complete set of water quality results and have consulted a qualified professional. The efficiency of one system over another may depend on other water quality parameters in your drinking water and some systems may have advantages over others depending on the water quantity available, your overall water quality and your treatment needs.

<u>Symptom</u>	<u>Possible Cause and Testing Available</u>	<u>Treatment Available</u>
Red or orange stains on laundry or fixtures, metallic taste, rust particles if water sits for long periods	Iron (have water tested for iron)	<ul style="list-style-type: none"> • Adsorption media • Aeration • Chlorination • Distillation • Manganese green sand • Ozonation • Reverse Osmosis
Black stains on laundry or fixtures, metallic or bitter taste in coffee and tea	Manganese (have water tested for manganese)	<ul style="list-style-type: none"> • Adsorption media • Aeration • Chlorination • Distillation • Manganese green sand • Ozonation • Reverse Osmosis
Blue-green stains in laundry or fixtures	Low pH and/or aggressive water can leach copper from plumbing which causes a blue-green discoloration (have water tested for copper, pH & hardness)	<ul style="list-style-type: none"> • pH adjustment • Distillation • Reverse Osmosis
Reddish-brown slime in toilet tank or bowl, iron staining and in some cases, an unpleasant odor and/or taste	Iron bacteria (no known test available)	<ul style="list-style-type: none"> • Chlorination (If problem is chronic, it may be necessary to have work done on the well by a licenced driller i.e scrubbing, flushing + disinfection)
Rotten egg odor and taste (often worse in hot water), silverware turns black	Hydrogen sulphide and/or sulphate reducing bacteria (hydrogen sulphide test is available at select labs; no known test available for sulphate reducing bacteria)	<ul style="list-style-type: none"> • Chlorination + sand filter • Chlorination + activated carbon filter • Chlorination + manganese green sand filter • Aeration • Adsorption media (For more solutions, see fact sheet: Why does my water smell like rotten eggs?)
Salty taste, corrosion of plumbing and fixtures that comes into contact with water	Sodium Chloride (Possible health effects for people on doctor prescribed low sodium diets) (have water tested for sodium, chloride, bromide)	<ul style="list-style-type: none"> • Reverse Osmosis • Distillation • New (shallower) well
Cloudy, dirty or muddy appearance	Turbidity (Could have health implications if well is under the influence of surface water) (have water tested for turbidity, Total Coliform and E.Coli)	<ul style="list-style-type: none"> • Depends on the cause of the turbidity. If the turbidity originates from within the well, it could be fixed by having work done by a licenced driller. If turbidity is caused by surface water infiltration, it could also be fixed by having work done on the well or by using a treatment device such as filtration combined with chlorination or UV disinfection. Disinfection is important because turbidity can be associated with bacteria.

Hard, scaly deposits in kettles and piping, fixtures and high soap consumption	Hardness (have water tested for hardness)	<ul style="list-style-type: none"> • Cation exchange (water softener) • Distillation • Reverse Osmosis
Objectionable chemical smell and taste	Gasoline and/or oil, or MTBE (Possible health effects) (have water tested for hydrocarbons and MTBE)	<ul style="list-style-type: none"> • Consult with Department of Environment.

For more information on water quality problems, see links below:

- [Fact Sheet: Why does my Water Smell Like Rotten Eggs?](#)
- [Fact Sheet: Salt in Private Drinking Water Wells](#)
- [Facts on Arsenic in Well Water](#)